

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-21. (Cancelled).

22. (New) A method of making a lithiated gamma-manganese dioxide for a primary lithium battery comprising:

contacting a gamma-manganese dioxide with a lithium source at a lithiation temperature of between 40°C and 120°C to provide a lithiated gamma-manganese dioxide having about 0.22 mole of lithium per mole of manganese dioxide; and

heating the lithiated gamma-manganese dioxide to remove residual and surface water to produce a dried lithiated gamma-manganese dioxide having an X-ray diffraction pattern of gamma-manganese dioxide.

23. (New) The method of claim 22, wherein the lithium ion source is an aqueous solution including a lithium salt.

24. (New) The method of claim 22, wherein the lithium salt is a lithium hydroxide.

25. (New) The method of claim 22, wherein the lithiation temperature is between 60°C and 100°C.

26. (New) A primary lithium battery comprising
an anode;

a cathode including a lithiated manganese dioxide including about 0.22 mole of lithium per mole of manganese dioxide and having an X-ray diffraction pattern of gamma-manganese dioxide;

a separator; and

an electrolyte.

27. (New) A method of making a lithiated gamma-manganese dioxide for a primary lithium battery comprising:

contacting a gamma-manganese dioxide with a lithium source at a lithiation temperature between 40°C and 120°C to provide a lithiated gamma-manganese dioxide having 0.21 mole of lithium per mole of manganese dioxide; and

heating the lithiated gamma-manganese dioxide to remove residual and surface water to produce a dried lithiated gamma-manganese dioxide having an X-ray diffraction pattern of gamma-manganese dioxide.

28. (New) The method of claim 27, wherein the lithium ion source is an aqueous solution including a lithium salt.

29. (New) The method of claim 28, wherein the lithium salt ion source is an aqueous solution including a lithium salt.

30. (New) The method of claim 28, wherein the lithium salt is lithium hydroxide.

31. (New) A primary lithium battery comprising
an anode;

a cathode including a lithiated manganese dioxide including 0.21 mole of lithium per mole of manganese dioxide and having an X-ray diffraction pattern of gamma-manganese dioxide;

a separator; and

an electrolyte.

32. (New) A method of making a lithiated gamma-manganese dioxide for a primary lithium battery comprising:

contacting a gamma-manganese dioxide with a lithium source at a lithiation temperature between 40°C and 120°C to replace protons in the gamma-manganese dioxide with lithium; and

heating the lithiated gamma-manganese dioxide to remove residual and surface water to produce a dried lithiated gamma-manganese dioxide having an X-ray diffraction of gamma-manganese dioxide

wherein the dried lithiated gamma-manganese dioxide, tested using the SPECS low rate discharge test, has a first discharge peak centered at about 2.87 volts and a second discharge peak centered at about 3.25 volts.

35. (New) The method of claim 32, wherein the lithium ion source is an aqueous solution including a lithium salt.

34. (New) The method of claim 33, wherein the lithium salt is lithium hydroxide.

35. (New) The method of claim 32, wherein the lithiation temperature is between 60°C and 100°C.

36. (New) A primary lithium battery comprising:
an anode;

a cathode including a lithiated manganese dioxide having an X-ray diffraction pattern of gamma-manganese dioxide and having a first discharge peak centered at about 2.87 volts and a second discharge peak centered at about 3.25 volts when tested using the SPECS low rate discharge test.